

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
22 September 2005 (22.09.2005)

PCT

(10) International Publication Number  
**WO 2005/088991 A1**

(51) International Patent Classification<sup>7</sup>: **H04Q 7/20**

(21) International Application Number:  
PCT/US2005/007279

(22) International Filing Date: 7 March 2005 (07.03.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/550,968 6 March 2004 (06.03.2004) US

(71) Applicant and

(72) Inventor: **CHANG, Ting-Mao** [US/US]; 2126 Villanova Road, San Jose, CA 95130 (US).

(81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

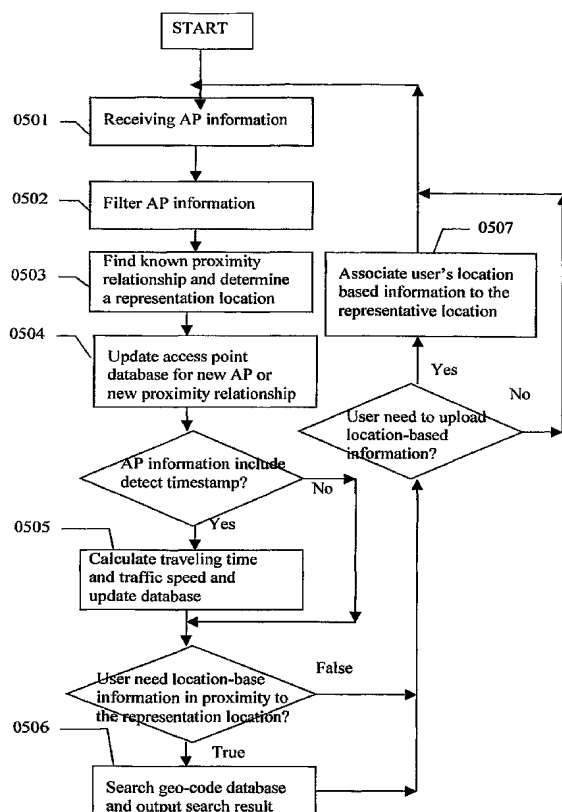
(84) Designated States (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— of inventorship (Rule 4.17(iv)) for US only

[Continued on next page]

(54) Title: SYSTEM AND METHOD FOR DETERMINING A LOCATION BY USING MULTIPLE IDENTIFIERS OF WIRELESS ACCESS POINTS



(57) Abstract: A system and method receives multiple identifiers of wireless access points, for example MAC address, and detecting timestamps of them to identifying a location. The present invention verifies the proximity relationship of multiple access points by using the proximity relationship in an access point database, for example the operation range overlapping relationship, the distance, or the safety minimum traveling time between access points. After verification, the present invention selects one or more representative access point. Then, the present invention might search a geo-coded database for location-based information in proximity to the representative access point or its nearby location according to certain search criteria and return to user. The present invention might associate user provided information to the representative access point or its nearby location in the geo-coded database. The present invention further uses the received information to update access point database, including store new identifier, updating the proximity relationship between access points, and calculating the traveling speed between access points for constructing and updating a road traffic database. The present invention might further maintain location history of access points and provide exchange service that exchanges a set of old identification information of access points with a set of new identification information at the same location. The system of present invention can be install within a network server that connect remotely with mobile client or directly install in mobile client.

WO 2005/088991 A1



---

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*